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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/684,761	10/14/2003	Scott L. Vance	9314-51	3345

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EXAMINER	
DAGOSTA, STEPHEN M	

ART UNIT	PAPER NUMBER
2683	

DATE MAILED: 08/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

Office Action Summary	**Application No.** 10/684,761	**Applicant(s)** VANCE, SCOTT L.
	Examiner Stephen M. D'Agosta	**Art Unit** 2683

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.
2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-16_ is/are pending in the application.
  4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) _1-16_ is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on _14 October 2003_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.
  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
  Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  a)☐ All b)☐ Some * c)☐ None of:
    1.☐ Certified copies of the priority documents have been received.
    2.☐ Certified copies of the priority documents have been received in Application No. _____.
    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
  * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
  Paper No(s)/Mail Date _10/03, 12/04_.
4) ☐ Interview Summary (PTO-413)
  Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement filed 12-20-2004 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language. It has been placed in the application file, but the information referred to therein has not been considered.

There was no translation of the JP 2002-118414 Abstract, hence it has not been considered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-16 rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson et al. US 6,456,249 and further in view of Phillips et al. US 6,421,016 and Monma et al. EP1030401.

As per **claims 1 and 9,** Johnson teaches a mobile terminal (figure 1) comprising:

a printed circuit board having first and second sides and having a reference voltage conductor therein (figure 1 shows a PCB #22, having first and second sides and a voltage conductor/ground plane, #20. Also see figure 2 for a more detailed look at the PCB/PWB, #22),

an antenna (figure 1, #10 is an antenna assembly, see C4, L29-54); and a parasitic resonator (figure 1, #18) having first coupling to the second side of the printed circuit board (figure 1 shows parasitic resonator coupled to PCB), wherein the first coupling to the printed circuit board provides a first impedance between the parasitic resonator and the reference voltage conductor (C10, L44-67), **but is silent on** (antenna) coupled to the first side of the printed circuit board AND so that the printed circuit board is between the antenna and the parasitic resonator AND second coupling AND wherein the second coupling to the printed circuit board provides a second impedance between the resonator and the reference voltage conductor wherein the first and second impedances are different.

Phillips teaches an antenna system with antenna and PCB and first and second conductors/couplings (see claim 1) providing different impedances (title, abstract) whereby the antenna can be located “anywhere on the conductive connection between first/second conductors and not only on the further right portion as shown” (C4, L52-58) which supports locating the antenna on the second side of the PCB. Figure 3 also shows multiple impedances (Z1, Z2) which can provide reactive tuning (C4, L9-27 and C6, L24-37) where Z1 would not equal Z2. Further to this point, **Monma** teaches a different embodiment whereby the antenna is located away from the passive/parasitic element and has connection(s) to impedances which overcomes obstacle problems caused by a user’s head proximate the mobile device (see P0007 and figures 1-3).

It would have been obvious to one skilled in the art at the time of the invention to modify Johnson , such that the (antenna) is coupled to the first side of the printed circuit board AND so that the printed circuit board is between the antenna and the parasitic resonator AND second coupling AND wherein the second coupling to the printed circuit board provides a second impedance between the resonator and the reference voltage conductor wherein the first and second impedances are different, to provide means for diverting currents away from the user’s head when operating the device (Phillips, C4, L9-27).

As per **claims 2 and 14,** Johnson teaches claim 1/13 **but is silent on** wherein the first coupling provides an electrical short between the parasitic resonator and the reference voltage conductor and wherein the second coupling provides at least one of a capacitance and/or an inductance between the reference voltage conductor and the parasitic resonator.

Phillips teaches couplers which are capacitive/inductive (C6, L38-63). Phillips discloses "electrically shorting" at least one of the couplings/connectors (see claim 11).

Monma teaches short circuiting line (figure 2, #203a).

It would have been obvious to one skilled in the art at the time of the invention to modify Johnson, such that the couplers provide shorting/impedance, to provide means for correctly driving the antenna device (Phillips, C4, L59 to C5, L22).

As per **claims 3-4 and 15-16,** Johnson teaches claim 1/13 **but is silent on** wherein the second coupling provides a capacitance/inductance between the reference voltage conductor and the parasitic resonator that is greater than a capacitance (or inductance) provided by the first coupling between the reference voltage conductor and the parasitic resonator.

Phillips teaches that both Z1 and Z2 are tunable (C6, L30-37) which provides for any/all possibilities for Z1 to be less than, greater than or equal to Z1 and vice versa. Also see C6, L38-62).

Monma teaches impedance matching circuit (figure 2, #221) and various designs for connecting inductors/capacitors together (figures 8-13).

It would have been obvious to one skilled in the art at the time of the invention to modify Johnson, such that the second coupling provides a capacitance/inductance between the reference voltage conductor and the parasitic resonator that is greater than a capacitance (or inductance) provided by the first coupling between the reference voltage conductor and the parasitic resonator, to provide adjustable impedances for optimal operation of the phone during RF transmitting/receiving.

As per **claims 5-7 and 10-11,** Johnson teaches claim 1/9 **but is silent on** wherein at least one of the first and second couplings comprises a discrete impedance element between the parasitic resonator and the reference voltage conductor.

Phillips teaches discrete tunable components, Z1 and Z2 (see figure 3). The discrete components are attached/soldered to the PCB.

Monma teaches impedance matching circuit (figure 2, #221) and various designs for connecting inductors/capacitors together (figures 8-13).

It would have been obvious to one skilled in the art at the time of the invention to modify Johnson, such that at least one of the first and second couplings comprises a discrete impedance element between the parasitic resonator and the reference voltage conductor, to provide inductive/capacitive impedances which minimize the magnetic field on the front conductor surface (Phillips, C6, L46-50).

As per **claims 8 and 12,** Johnson teaches Claim 5/9 **but is silent on** wherein each of the first and second couplings comprises a discrete impedance element between the parasitic resonator and the reference voltage conductor.

Phillips teaches discrete tunable components, Z1 and Z2 (see figure 3) which attach the resonator to the other components.

Monma teaches impedance matching circuit (figure 2, #221) and various designs for connecting inductors/capacitors together (figures 8-13).

It would have been obvious to one skilled in the art at the time of the invention to modify Johnson, such that each of the first and second couplings comprises a discrete impedance element between the parasitic resonator and the reference voltage conductor, to provide means for adjusting individual discrete components to maintain optimal operation of the mobile device.

As per **claim 13,** Johnson teaches claim 9 wherein the first coupling to the printed circuit board provides a first impedance between the parasitic resonator and the reference voltage conductor (figure 1 shows parasitic resonator coupled to PCB, also see C10, L44-67), **but is silent on** wherein the second coupling to the printed circuit board provides a second impedance between the resonator and the reference voltage conductor wherein the first and second impedances are different.

Phillips teaches an antenna system with antenna and PCB and first and second conductors/couplings (see claim 1) providing different impedances (title, abstract) whereby the antenna can be located "anywhere on the conductive connection between first/second conductors and not only on the further right portion as shown" (C4, L52-58) which supports locating the antenna on the second side of the PCB. Figure 3 also shows multiple impedances (Z1, Z2) which can provide reactive tuning (C4, L9-27 and C6, L24-37) where Z1 would not equal Z2.

Monma teaches impedance matching circuit (figure 2, #221) and various designs for connecting inductors/capacitors together (figures 8-13).

It would have been obvious to one skilled in the art at the time of the invention to modify Johnson, such that wherein the second coupling to the printed circuit board provides a second impedance between the resonator and the reference voltage conductor wherein the first and second impedances are different, to provide means for diverting currents away from the user's head when operating the device (Phillips, C4, L9-27).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

1. Kadambi et al. US 6,639,560
2. Buris et al. US 6,563,467
3. Fukasawa et al. US 5,966,097
4. Jarmuszewski et al. US 6,891,506
5. Ito et al. US 6,337,668
6. Krenz et al. US 6,839,577
7. Anderson et al. US 6,873,294
8. Ogawa et al. US 4,700,194
9. Keilen et al. US 6,407,710
10. Vance US 6,909,402

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen M. D'Agosta whose telephone number is 571-272-7862. The examiner can normally be reached on M-F, 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Trost can be reached on 571-272-7872. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Stephen D'Agosta
Primary Examiner
6-30-2005